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ABSTRACT

This investigation considered several issues relevant to the assessment of teacher nonverbal behaviors in the classroom. Multiple steps were taken to identify teacher proximity as a quantifiable dimension of teacher nonverbal behavior. These steps include the following: a) isolation of the student-initiated question frame as a suitable and relevant context in which to conduct proxemic research; b) estimation of internal consistency reliability of the kinesthetic scale of the Proxemic Notation System in an educational context; c) examination of a hypothesized relationship between teacher nonverbal behavior as measured by the Proxemic Notation System and the verbal behavior of the teacher as measured by the Observation Schedule and Record (OScAR-5V); and d) examination of the relationship between teacher nonverbal behavior as measured by the selected scale of the Proxemic Notation System and pupils' attitudes toward school as measured by the Describe Your School Inventory. Data was collected from 13 teachers from grades four through eight and 337 pupils representing an entire school teacher-pupil population. A canonical correlation procedure was used to analyze behavior relating teacher verbal behaviors to teacher nonverbal behaviors. (Tables describing OScAR-5V verbal scales, analysis of variance of kinesthetic data, and the "Describe Your School Inventory" are included.) (Author/JS)

The Relationship Between Teacher Nonverbal Behaviors and Selected Teacher-Pupil Attitudes and Behaviors*

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Objectives

This investigation was planned to study several issues relevant to the assessment of teacher-classroom-nonverbal-behaviors. Multiple steps were taken in this investigation in order that teacher proximity might be identified as a quantifiable dimension of teacher nonverbal behavior. These steps included: (1) the isolation of the student-initiated question frame as a suitable and relevant context in which to conduct proxemic research; (2) the estimation of internal consistency reliability of the kinesthetic scale of the Proxemic Notation System in an educational context; (3) the examination of a hypothesized relationship between teacher nonverbal behavior as measured by the selected scales of the Proxemic Notation System and the verbal behavior of the teacher as measured by the Observation Schedule and Record (5V): (4) the examination of the relationship between teacher nonverbal behavior as measured by the selected scale of the Proxemic Notation System and pupils' attitudes toward school as measured by the Describe Your School Inventory.

Background

Literature related to the following topics was reviewed: (1) the identification and description of interpersonal proximity as a variable in research; (2) the hypothesized relationship between physical and psychological distances; (3) classroom research employing teacher proximity as a nonverbal variable, and (4) reported research investigating relationships between verbal and nonverbal behavior. Reviewed literature has suggested that teacher-pupil interactions are a behavioral exchange phenomenon. As such, they are interpersonal communicative events in which the teacher and pupil serve as stimuli for one another. Each participant in these events has as their disposal a variety of verbal and nonverbal behaviors with which to sustain or terminate an interaction. The origins of interpersonal proximity have been traced. Research in social psychology, personality, counseling and education has produced findings supporting a relationship between physical and psychological distance. Similarly, research studies that have investigated nonverbal and verbal behavior suggest that a relationship may exist between selected verbal and nonverbal behaviors within specific contextual frames. The focus of this investigation is the application of these research considerations in an educational setting.

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Instruments

The specific measure of classroom verbal teacher behavior was the Observation Schedule and Record (OScAR-5V). The OScAR was developed to provide a technique for measuring classroom verbal behavior (Medley and Mitzel, 1958). The OScAR-5V is designed to retrieve information relevant to a characteristic of the teaching-learning situation labeled the learning environment. The OScAR-5V is comprised of eighteen scales which are then factored into eight orthogonal categories that effectively discriminate between what appears to be effective versus ineffective teaching. This factor analytic process was developed by Medley (1972) in order that statements might be made related to specific teacher behaviors based on the original eighteen variables. Table I briefly describes these eight catagories.

The specific instrument used in the collection of nonverbal teacher classroom behavior was the Proxemic Notation System (Hall 1963, 1973); more specifically the kinesthetic scale of the Proxemic Notation System. The Proxemic Notation System was developed as a method of systematically recording eight dimensions of nonverbal behavior. The original instrument has been modified to include as many as eighteen dimensions of nonverbal behavior, however the kinesthetic scale has remained essentially the same. The kinesthetic code provides for ten basic distinctions which account for potentially observable spacial transactions. The scale ranges from the closest proximity during an interaction: that of actual body contact, to that proximity just outside reaching distance. The scale recognizes the use of arms, elbows and knees to either increase or decrease perceived distance in a dyadic interaction.

The instrument selected as a measure of pupil attitudes towards school was the Describe Your School Inventory (DYS). The DYS was developed by Hoyt (1959) to study the validity of the MTAI. The DYS takes the form of a fifty item questionnaire and consists of simple questions to be answered by underlining "yes" or "no". Items are in the form of questions to minimize acquiescence set. Many of the items reflect MTAI statements. The DYS shares the MTAI's theoretical bias for classroom democracy and teacher-pupil rapport.

Data Source

Data related to teacher verbal and nonverbal behavior and pupils' attitudes toward school were collected during the winter term of the 1973-1974 school year. The study sample included 13 teachers from grades four through eight, and 337 pupils representing an entire school teacher-pupil population.

Data Analysis

The procedure suggested by Hoyt (1941) was used to analyze data related to the reliability of the kinesthetic data. An analysis of variance procedure was employed to analyze data related to differential

proxemic teacher behavior. A canonical correlation procedure was used to analyze data relating teacher verbal behaviors to teacher nonverbal behaviors. A multiple regression procedure was employed in analysis of data related to pupils' attitudes toward school and the verbal and nonverbal behaviors of the teacher.

Results

The following results were reported:

1) Significant differences were demonstrated ($p < .001$, 12,26 df) among teachers on the kinesthetic scale (Table II).

2) The coefficient of stability for the kinesthetic data was estimated to be .78 (Table III).

3) Significant differences ($p < .001$ 12,323 df) were reported between 13 classrooms on the Describe Your School Inventory (Table IV).

4) A multivariate analysis of variance procedure was applied to the eight verbal scales for 13 teachers. This analysis produced a significant ($p < .002$ 7, 96 df) multivariate F statistic.

5) Univariate F statistics were reported for the verbal scales question difficulty ($p < .002$, 12,26 df), managing behaviors, ($p < .05$, 12,26 df) and question quality ($p < .01$, 12,26 df).

6) Hoyt reliability estimates of .76, .52 and .71 were reported for question difficulty, managing behavior and question quality respectively. For all other scales, the reliability was under .50.

7) Significant canonical correlations were not found when teacher verbal and proxemic behaviors were related. A significant relationship .54 ($p < .05$, 1,11 df) was found between the verbal scale question difficulty and the nonverbal kinesthetic scale (Table X).

8) A multiple R of .3728 ($p < .001$ 9,335 df) was reported in relating pupil attitudes toward school to the verbal and proxemic behavior of the teacher (Table VIII).

Significance

This study (1) presents an expanded view of observable teacher behavior, specifically, teacher kinesthetic behavior, (2) makes application of the Proxemic Notation System within an education context, (3) identifies and

defends a contextual framework within which reliable comparison of teacher nonverbal behaviors can be made, (4) suggests the use of the context oriented approach to measurement of teacher nonverbal behavior, and (5) relates the identified teacher nonverbal behavior to pupil attitudes toward school.

TABLE I

DESCRIPTION OF EIGHT OBSERVATION SCHEDULE AND RECORD 5V VERBAL SCALES

M (Managing Behaviors): This is an index of the relative number of events that are concerned with procedural matters, that is with managing the class. A "really" considerate teacher would be reflected in a negative M score.

R (Rebuking Behaviors): This reflects primarily how often a teacher criticizes pupil behavior. A high score would reflect teacher irritability.

P (Permissive Behavior): A high positive score on this key reflects a permissive teacher (one who lets pupils make decisions). A high negative score reflects an autocratic teacher (one who does not let pupils make decisions).

L (Listening Behavior): A high scoring teacher is one who "listens" to a pupil and waits to be sure the pupil is done talking before replying or interrupting. This high scoring teacher lets a pupil who has just volunteered a comment or question make a second comment without interrupting him.

A (Lecturing Behavior): This key contrasts the teacher who develops content by lecturing, from one who develops it by questioning pupils. A teacher who lectures (talks about content for long periods of time) gets a very high positive score; a teacher who interacts a lot with pupils gets a high negative one.

S (Question Source): This key contrasts classrooms where pupils initiate relatively more interchanges with classrooms where the teacher initiates relatively more of them. The highest positive scores are associated with the former classrooms; a high negative score with the latter classrooms.

D (Question Difficulty): This key seems to contrast two kinds of teachers. A high positive score identifies a teacher who asks many questions, mostly convergent, which appear to be easy since the pupils almost always answer them correctly; but are rarely praised (as they should be if the questions are difficult). A high negative score identifies a teacher whose questions elicit answers of more varied quality; some are praised, some are criticized, some rejected, but very few are merely approved.

Q (Question Quality): This key contrasts two kinds of teachers. The teacher obtaining a high positive score is probing, questioning to develop more subtle points. This teacher asks mainly elaborating questions and rarely evaluates a pupil response. The teacher obtaining a high negative score asks mainly convergent questions, evaluates pupil responses, and asks another question. This later style might appear in a rapid-fire drill activity.

TABLE II

Summary Table for the Analysis of Variance of Kinesthetic Data for (N = 13) Teachers and 3 Observations

Source of Variation	Degrees of Freedom	Mean Squares	F Ratio
Within Observations	26	1232.00	
Among Observations	12	2803.43	4.930***
Total	38	4035.43	

*** $p < .001$

TABLE III

Summary Table for the Analysis of Variance For Hoyt Reliability of Kinesthetic Data For (N = 13) Teachers and 3 Observations

Source of Variation	Degrees of Freedom	Mean Squares	F Ratio
Teachers	12	233.62	4.59*
Observations	2	4.95	.09
Residual	24	50.92	
Total	38		

* $p < .05$ Hoyt Reliability Coefficient .78

TABLE IV

Summary Table for Analysis of Variance
of Describe Your School Data for (N = 13)
Classrooms

Source of Variation	Degrees of Freedom	Mean Squares	F Ratio
Within Classrooms	323	49.471	
Among Classrooms	12	274.591	5.551***
Total	335		

*** $p < .001$

TABLE V

Means and Standard Deviations of Variables
in Multiple Regression Equation with
Describe Your School Inventory
Scores as the Criterion (N=336)

Variable Name	Mean	Standard Deviation
Describe Your School	36.89	7.57
Question Source	200.06	191.36
Question Difficulty	16.99	68.69
Listening Behavior	0.00	0.00
Managing Behavior	13.99	12.41
Lecturing Behavior	-66.91	15.20
Rebuking Behavior	2.34	3.75
Permitting Behavior	3.31	3.51
Questioning Behavior	-41.37	27.92
Teacher Kinesthetic Behavior	12.54	8.89

TABLE VI

Summary Table of Analysis of Variance for
Regression of Independent Variables (N = 10) on
Dependent Variable Describe Your School Inventory (N = 336)

Source of Variation	Degrees of Freedom	Mean Squares	F Ratio
Regression	9	297.152	5.848***
Residual	326	50.805	

***p < .001

TABLE VII

Summary Table of Beta Weights and F-Ratios
for Predictor Variables (N = 8) of
Criterion Measure Describe Your School Scores

Variable Name	Beta Weight	F Ratio
Question Source	1.819	6.867**
Permitting Behavior	-.107	.565
Question Quality	-.145	11.823***
Managing Behavior	.113	4.947*
Rebuking Behavior	-.484	6.559**
Lecturing Behavior	.149	4.816*
Teacher Kinesthetic Behavior	.672	32.478***
Question Difficulty	-3.679	4.000

*p < .05 **p < .01 ***p < .001

TABLE VIII

Multiple R, R Square, R Square Change and Simple R for Contributing Verbal Variables and Kinesthetic Behavior with Describe Your School Inventory

Variable Name	Multiple R	R^2	R^2 Change	Simple R
Question Source	.097	.009	.009	-.0975
Permitting Behavior	.169	.028	.019	-.1391
Question Quality	.179	.032	.003	.059
Managing Behavior	.186	.034	.002	.117
Rebuking Behavior	.214	.045	.000	.011
Lecturing Behavior	.228	.052	.006	.017
Teacher Kinesthetic	.372	.139	.086	.273
Question Difficulty	.372	.139	.000	-.179

TABLE IX

Summary Table for Hoyt Reliabilities of Eight Verbal Factors of the Observation Schedule and Record

Source of Variation	Hoyt Reliability
Question Source	.07
Question Difficulty	.76
Listening Behavior	.00
Managing Behavior	.52
Lecturing Behavior	.47
Rebuking Behavior	.17
Permitting Behavior	.44
Question Quality	.71

TABLE X

Analysis of Variance for Regression of

Kinesthetic Data on Verbal Variable Question Difficulty

Source of Variation	Degrees of Freedom	Mean Square	F Ratio
Regression	1	.3754	4.588*
Residual	11	.0818	

*p<.05

Simple R	Coefficient of Determination	Standard Deviation	Beta
.542	.294	.286	1.0534

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